

A
SHORT DESCRIPTION
OF
KISSINGEN,
ITS
BATHS AND MINERAL WATERS.
TRANSLATED FROM THE GERMAN
OF
Dr. F. A. BALLING.

By
Sir ALEXANDER M. DOWNIE, M. D.
Author of a Practical Treatise on the Efficacy of Mineral Waters
in Chronic Disease.

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TRANSLATOR'S PREFACE.

The object of Dr. Balling in requesting me to undertake the translation of this work was the same by which I was myself induced to publish a practical treatise on the efficacy of mineral waters, viz. to afford to the profession, invalids, and casual visitors, a correct idea of their remedial efficacy in chronic disease. — The object of my friend, however, has in a great measure been anticipated by the Pilgrim who amidst his copious transcriptions and quotations from the works of the Spa Doctors has paid Dr. Balling the compliment

of subjecting his larger work to a species of transmutation and therefrom extracting an article entitled Kissingen.

It may however be proper to state that the present pamphlet was written after Dr. Johnson's last pilgrimage and is the most recent publication that has appeared on the remedial properties of the waters of Kissingen. It was handed to me in M. S. in the month of April, with a request that I should undertake its translation. I acceded to the proposal on finding that it contained within a small compass all that appeared useful or interesting on the subject of which it professes to treat.

Differing as I do from the author in many of the physiological and pathological theories which he advances peculiar to the german school of medicine, my intention was to have written some notes illustrative of the different views entertained on many of these subjects by the profession in Eng-

land; — to the general reader however these could not prove interesting or instructive, and I must beg my professional Brethren who may be induced to peruse the work not to hold me responsible for doctrines different to those I have advanced in my own work on mineral waters.

The „*Cub Spa*,” as the facetious pilgrim is pleased to term it, is fast progressing in size, and I humbly trust that this small work may have the effect of hastening the period when it will have attained its maturity and may be considered a full grown „*Lion Spa*”.

A. M. D.

9. Grosse Gallengasse
Frankfort June 1841.



PREFACE.

The design which the author of this short pamphlet has in view, is to offer a few observations founded on experience on the mineral springs of Kissingen, to point out their effect on a morbid condition of the digestive organs as well as on affections of the chest and skin, thereby fixing the proper position which they are entitled to hold among the numerous spas of Germany.

There is scarcely a mineral water in Germany respecting which more erroneous and ex-parte statements have been promulgated than Kissingen; no sooner is a new spring of the same class discovered, however insignificant in itself, than its chemical and other qualities are said not only to equal but to surpass the Ragozzi, —

the writer at the same time taking the precaution not to mention that other springs exist at Kissingen not less remarkable for their medicinal qualities than this renowned source.

The Author in offering these few observations to the public, endeavours to direct the attention of the Profession, not only to the medicinal properties of the springs of which he treats but to several indications well worthy the consideration of the Physician who turns his attention to the sanative efficacy of mineral waters in the treatment of disease.

Should more practical or minute information be required on the subject, he begs to refer them to his larger work translated into french and entitled „Kissingen ses eaux minérales et ses bains.”

F. Antony Balling M. D.

Kissingen. April 1841.

I.

GENERAL REMARKS

on the

MINERAL SPRINGS AND BATHS OF KISSINGEN.

KISSINGEN is situated on the banks of the river Saal in the province of lower Franconia, now forming part of the kingdom of Bavaria, and has long been known for the variety and efficacy of its mineral waters, the reputation of which has within the last 20 years extended to other quarters of the globe. — Few places are more favored in point of locality than Kissingen; it is situated in the middle of Germany at about equal distances from Würzburg, Meiningen, Fulda, and Bamberg —; the scenery around the town is extremely varied. Surrounded by hills the base of which is covered with vines and the summits with woods, pre-

senting the most luxuriant foliage; the valley of the Saal is one of the most beautiful and romantic in Germany. — The climate too is mild and temperate being entirely sheltered both from the North and East. The atmosphere is pure and bracing, entirely free from damp.—

The accommodations at Kissingen have improved as the reputation of the waters has increased. The same may be said of the arrangements for Invalids. — Large and commodious houses have lately been built as remarkable for their architectural beauty as for their internal comfort; many of these contain Baths and are surrounded by gardens; they are let entire, or in apartments, as may be desired. —

There are five mineral springs at Kissingen which have been employed as remedial agents for many years with the most satisfactory result.

- 1) The *Ragozzi*, discovered in the year 1737 in the ancient bed of the river Saal.
- 2) The *Pandur*, known for many centuries, principally used for bathing.

- 3) The *Soolensprudel*, discovered in 1822.
- 4) The *Maxbrunnen*, probably the longest in use and taken only internally —
- 5) The *Theresienquelle*, the age of which dates from 1828. —

Four of these, the Ragozzi, the Pandur, the Maxbrunnen and the Theresienspring belong to the class of cold springs, — their temperature not exceeding 8 or 9 degrees of Reaum., or 47, 75 to 50° of Fahrenheit. The Soolensprudel however approaches the temperature of Thermal waters — $15\frac{1}{2}^{\circ}$ Reaum. The quantity of water yielded by these springs in a given time is considerable, amounting in the case of the Ragozzi, the Pandur, and the Soolensprudel to not less than 40 cubic feet in a minute.

This latter spring presents the extraordinary phenomenon of ebbing and flowing at stated intervals, yielding in its ebullitions an immense quantity of Carbonic Acid Gas which seems to be the power by which the water is propelled upwards.

The annexed table points out the ingredients of all the springs at Kissingen, according to the analysis of Kästner, from which their richness in mineralized matter will be at once seen. The predominant ingredient in these waters is Muriate of Soda, as important and requisite for the process of digestion as Oxygen is for that of breathing; — besides this we find a quantity of muriatic carbonic and sulphuric acid combined with various salts. Iodine and Bromine too, substances so very important in medicine, are yielded by the waters of Kissingen as will appear by the analytical table already referred to. —

The second principal and characteristic ingredient is sub-carbonate of Iron contained in the three first mentioned springs; none however is found in the Max- and Theresienbrunnens. — The existence of this metal in these springs renders them powerful remedial agents, more especially the Ragozzi which contains more Iron than any known water of which the chief ingredient is muriate of Soda, while its total absence in the Max- and Theresienbrunnens

renders them peculiarly adapted in the treatment of diseases in which Iron might disagree or is counter-indicated.

CARBONIC ACID GAS. This most vivifying and exhilarating element constitutes the third essential ingredient of all the mineral waters of Kissingen. It is so minutely and intimately combined with the other substances entering into the composition of the water, that it does not escape either in drawing the water from the source, or during the act of deglutition. This is characteristic of all ærated waters.

In enumerating the salutary ingredients which are held by the springs of Kissingen in almost organic combination, we must not overlook the fact that there is nearly a total absence of substances likely to prove ineffectual in themselves or prejudicial to health. — I should instance particularly the salts of Lime contained in a much larger proportion in other springs of the same class; more especially the Elizabethen of Homburg, which holds three times the quantity found in the Ragozzi. — All the waters above described are employed in the

treatment of disease both internally and externally.

In addition to the mineral springs a number of auxiliary means will be found at Kissingen, all of which tend to assist, modify and augment the effect of the waters, as circumstances may require or as the state of disease may indicate. These are:

- 1) The carbonic acid Gas, yielded in such an excess of quantity by the Soolensprudel: this being collected by an apparatus adopted for the purpose is applied in the form of a Douche in cabinets erected for the accommodation of invalids close to the spring.
- 2) The steam issuing from the evaporating pans used in the salt works, which is employed not only for bathing, but is also inhaled in certain affections of the Lungs.— A separate establishment of baths has lately been fitted up for this purpose.
- 3) An establishment for the making of Whey either from Goat's or Cow's milk, given

with good effect in combination with the Maxbrunnen.

4) The Mud Baths, and

5) Baths composed of „Mutterlauge“ (mother water) or strong brine, which remains in the reservoirs after the crystallization of the salt.

Thus then we find at Kissingen a variety of remedial agents which may be employed separately or in combination, agreeably to the advice of the Physician. Their efficacy in disease when judiciously employed will be found to realize every rational expectation; they are peculiarly indicated in:

A. DYSPEPSIA AND AFFECTIONS OF THE SEXUAL ORGANS.

In the former the Ragozzi is found the most efficient remedy, and next to it the Pandur and Soolensprudel; in several cases of the latter the Gas and Steam Baths have been productive of the most decided and permanent effect.

B. DISEASES OF THE CHEST.

In some affections of the lungs and mucous membranes the acidulated water of the Max and Theresienbrunnens, combined with whey,—the patient at the same time inhaling the steam already described, — has been used with great success.

C. RHEUMATIC AND GOUTY AFFECTIONS EXISTING EITHER ALONE OR COMBINED WITH NEURALGIA AND CUTANEOUS DISEASES.

In cases of this description the Steam Mud and Gas Baths have a most salutary effect, the Ragozzi being at the same time taken as an auxiliary remedy.

A few illustrative remarks, the result of long experience, will enable the reader to judge more fully of the peculiar efficacy of the water of Kissingen.

III.

THE MINERAL SPRINGS AND BATHS OF KISSINGEN USED IN ABDOMINAL AND SEXUAL DISEASES.

The effects of the Ragozzi, Pandur and Soolen-sprudel on the human system may be termed primary and secondary.

The *primary* effect consists in a vivifying, exciting and invigorating principle, which is perceived when the water comes in contact with the membranes of the stomach, whence the same sensation is conveyed to the adjacent organs. — This feeling of warmth and fulness is occasioned by the carbonic acid gas getting free in the stomach. — The effect produced by the other chemical combinations upon matter preexisting in the stomach has hitherto escaped the vigilant eye of the medical observer.

The *secondary* effects reach farther and are of a more powerful character. Long experience

has taught us that not only the salts contained in these springs but likewise the iron and the carbonic acid Gas are taken up by the blood vessels and thus exert an influence more or less upon the processes of assimilation and nutrition, — and as a consequence of this the secretions and excretions of the body are stimulated to a healthy action; vitiated matter, being detached, is thrown off, whilst on the other hand essential changes in the circulating and nervous system take place.

1) THE SECRETIONS UNDERGO CERTAIN CHANGES.

The following are the most characteristic changes produced by increased activity, in the secretive organs.

a) *The secretion of the mucous membranes.*

It is chiefly at the commencement of the cure that the secretions of the mucous membranes of the alimentary canal and of the organs of respiration are increased.

The phlegm changes in colour, odour and consistency, according to the nature of

the disease or peculiarity of idiosyncrasy in the individual. Thus gluey tough matter of a dark green colour or pale frothy matter is frequently ejected, while on the other hand matter of a grey black or darkbrown colour, and looking like the spawn of frogs, passes off by the rectum. The discharge from the sexual organs has a thin watery appearance and a peculiarly pungent smell.

b) Secretion of the skin.

The perspiration, which is greatly increased in quantity, has an acrid smell; in some cases its odour is specific and is characteristic of certain maladies such as Hemorrhoids and affections of the Spleen. It not unfrequently produces an itching and burning sensation on the skin which is followed by miliary eruption.

c) Secretions of the kidneys.

The secretion of the kidneys, as may be readily supposed from the quantity of carbonic acid gas, is greatly increased by the action of the waters.

The urine is often sedimentitious; sometimes the deposit is crystalline, but more frequently mucous; this however depends upon the action of the salts contained in the water upon substances met with in the bladder. Uric acid is sometimes deposited and we not unfrequently detect the salts of Ammonia. — In affections of the liver oleaginous and bilious matter are met with, and in some nervous disorders the urine emits a peculiarly pungent and disagreeable odour, which however generally ceases after a few days

d) secretion of the Alimentary Canal.

The secretion of the alimentary canal is increased from the commencement to the end of the course. In quality it varies according to the nature of the disease: — sometimes watery, but more frequently the contrary, and almost always of a peculiarly unhealthy appearance and fetid odour.

e) Glandular secretions.

The secretion of the salivary glands is rarely increased, but its chemical character

is frequently changed. The increased secretion of the liver is very perceptible; bilious matter is often ejected by the mouth, or, mixed with a quantity of mucous, it passes off by the bowels.

f) Respiration is affected,—the breathing being not only quickened, but the exhalation is (if I may use the expression) more voluminous.—The breath itself has a peculiar sickly smell, so that certain diseases may be detected by this sign.

2) CHANGES PRODUCED IN THE CIRCULATION AND NERVOUS SYSTEM.

Together with the secretions already mentioned the continued use of the water of Kissingen exerts an influence on the state of the blood and stimulates the nervous system.

Should the blood at the commencement of the treatment be black in colour and thick in consistency,—should the circulation be torpid or unequal, the veins swollen, extended or varicose, indicating that the whole circulating system is in an abnormal state, the waters of the

Ragozzi will be found after a certain time to exert a most salutary influence. The blood will become more fluid and assume its original colour, the circulation will be quickened and the pulsation regulated, the veins will be reduced to their normal diameter, and at the end of four or six weeks the balance between the arterial and venous systems will be reestablished;—at the same time the symptoms which are usually present in such cases and which generally consist in extreme nervous irritability or depression gradually disappear. This beneficial effect however does not usually take place without considerable constitutional derangement.

A painful depression of spirits amounting almost to hopelessness and despair, accompanied by great irritability of temper are the symptoms which usually indicate the gradual and salutary effect of the waters: these symptoms continue for several days, but rarely without interruption; they subside by degrees and are followed by renewed vigour both of body and mind.

When the albuminous and watery particles in the blood predominate or when the fluid has

a transparent lymphatic appearance, the internal use of the Ragozzi, pursued simultaneously with the Baths of the Soolensprudel, will be found to exert a most beneficial influence; the lymph will become purified and free from all foreign matter. Should a tendency to swelling in the glands exist, it will be found to decrease and the proper proportion between the component parts of the blood will be gradually restored.—Both these results are easily accounted for when we consider the well known effect of the water in purifying the blood and freeing it from all morbid matter,—thus effecting a complete change in the process of assimilation.

The effect of the waters of Kissingen upon the nervous system is not so easily explained; that it is equally powerful however cannot be doubted, since we perceive that the functions gradually regain their normal condition,—that depression of spirits disappear, and that the mind becomes both vigourous and energetic.

3) SYMPTOMS OF REACTION;—THE SANATIVE POWER OF NATURE;—CRISIS.—

Such mighty changes in the vegetative sphere of our organic structure cannot take place without at the same time affecting in some degree the complex machinery of the human system and calling to its assistance the whole energy of the sanative power inherent in our frame. Consequently we find symptoms of fever ensue after the use of the waters has been continued for some time: these vary according to constitutional peculiarity or the nature of the disorder; the pulse too becomes more rapid, the temperature of the body is increased, the nervous system becomes irritated and excited, and physical, as well as moral, inactivity is the result.

Another effect which clearly proves the powerful action of these waters is, that symptoms in chronic complaints vary in their character and intensity,—frequently to such a degree as to adopt the character of acute disease. Hence

a) the remarkable phenomenon in cases where a combination of diseases exists in the same

individual. Each will assume a different character,—the symptoms will become distinct, and each progress independently of the other. Thus we frequently find in obscure and complicated maladies, after the waters have been employed for two or three weeks, that the symptoms which at the commencement excited anxiety are relieved by the appearance of another and separate disease of a more simple character, such a Hæmorrhoids, Gout, Rheumatism, Eruptions &c.

b) When a disease thus displays its characteristic symptoms, its course becomes simple and natural and terminates favorably to the great relief of the patient. At times the symptoms produced by the action of the waters bear some relation to, or are characteristic of, the primary disease:—thus for instance in hæmorrhoidal affections furunculi or boils are produced, while rheumatic pains are relieved by a miliary eruption.

c) These symptoms, if not checked, pursue an uniform course even during the crisis,

but are generally unattended by constitutional excitement. The crisis in scrofolous affections is often indicated by proper secretion of mucous, by an excess of oxalic acid in the urine, but more frequently by the appearance of Exanthemata or eruptive diseases; in Rheumatism by profuse perspiration, miliary fever, sedimentitious urine &c. while in erysipelatous affections (Rothlaufprocesse) we find bilious evacuations, high coloured urine, urticaria or nettle rash &c.; this latter however continues for a few days only. In Hoemorrhoids the crisis is marked by an admixture of blood in the alvine excretions; in females this usually passes off *per vaginam*. Eruptions are seldom present. The sanative action of the water in gout manifests itself by the accession of a slight paroxysm, which, continuing for a few days, subsides gradually; — slight fever is sometimes present, and towards the close of the attack the perspiration becomes profuse, and the action of the kidneys is

greatly increased. — The crisis in Hysteria and Hypochondriasis consists in the first instance in cramp, which is usually succeeded by quiet and refreshing sleep.— The crisis once over, the patient will speedily recover, unless his malady has taken *too deep a root in the constitution*. When this is the case, when the energy of the reactive power has become too much weakened, we not unfrequently find a periodical return of cutical secretions: these are attended by the most beneficial results, since they afford time to the reactive powers of nature to recruit, which is followed by the gradual return of health and vigour. When however a complete prostration of the reactive organs exists, when the disorder (if I may be allowed the expression) may be said to have grown up with the patient, no benefit can be expected.— This is sometimes the case in hæmorrhoidal and arthritic complaints. In such instances a crisis will also take place and a periodical return may be ex-

pected; but it will not be so decisive in its nature as completely to overcome the disease.—The patient's sufferings will not be removed; — they may be alleviated. The secretions which are characteristic of a Crisis and which frequently follow a course of the waters are the result of their subsequent action and are partly produced by the renewed vigour acquired during the cure by the reactive powers of the constitution.

- e) One peculiarly striking effect of the chalybeate saline waters of Kissingen when taken in disease is, that the malady of the sufferer retrogrades and passes *de novo* through the various symptoms by which it progressed until it attained the exact stage at which the use of the water was commenced.

Another characteristic effect of these waters ought also to be noticed here. I allude to their peculiar action on the cause of *disorder or seat of disease*. This action continues as long as the morbid cause

exists;—but when once removed, all the secretions will become healthy and natural and continue so even should the use of the remedy be persevered in for an undue space of time. This stage is called the *point of Satiety* (“Sättigungspunkt.”)

4) PECULIAR EFFECT OF THE CHALYBEATE SALINE WATER OF KISSINGEN AND ITS RELATIVE RANK AS COMPARED WITH OTHER SPRINGS.

When we take a comprehensive view of the different effects produced by the mineral waters of Kissingen when properly employed in disease, we shall find that they not only remove all morbid matter, eruptive diseases &c. while they at the same time rectify the whole process of assimilation, regenerate the circulation and the nervous system, but that they also supply the whole organic system with such a powerful accession of *healing material* (Heilstoff) as to enable it to retain the healthy condition acquired by the use of the waters.

Spas like Carlsbad, Marienbad and many others are chiefly efficacious in affections of the

lower bowels caused by accumulation of morbid matter; waters on the other hand which contain Iron have a beneficial effect in cases wherein an affected condition of the nervous system is a *primary*, and that of the circulation is only a *secondary*, cause of diseases. The Chalybeate Saline Springs of Kissingen, when compared with these two renowned spas, may be said to rank between them. This then is the situation which we would assign to them amongst the numerous mineral waters of Germany.

The proper sphere of action of the waters of Kissingen is when the circulation and nervous system are simultaneously in a disordered condition, when accumulation of morbid matter exists in the lower bowels accompanied by distention in some portions of the intestinal canal:—but their sanative efficacy in an impaired state of the digestive organs is the most striking.—In all affections of this nature the remedial efficacy of the Ragozzi remains unequalled.

When a stimulating effect is indicated, as is often the case in induration of the Liver, Ute-

rus &c. the muriatic acid steam Baths will be found a powerful accessory remedy;—but when a vivifying action of the nervous system is required, the employment of the Carbonic Acid Gas will be found to prove more efficient and successful.

5) AFFECTIONS OF THE INTESTINAL CANAL IN WHICH THE WATERS OF KISSINGEN ARE INDICATED.

We shall now point out those affections of the lower bowels in which the employment of the waters of Kissingen is peculiarly applicable.

a) *Derangement of the functions of digestion in general.*

If the fact is undeniable that the enjoyment of health chiefly depends upon the proper action of the digestive organs, if experience proves that muriate of Soda and oxyde of Iron combined with carbonic acid gas produce a powerful effect in restoring the tone of these organs whether their abnormal condition is caused by affection of the nerves

or by a vitiated state of the juices, then we must allow that the Ragozzi of Kissingen holds a high rank amongst the mineral waters of Europe.

- b) *Every species of scrofula with the exception of that which has its seat in the texture of the Lungs or Brain.*

That the waters of Kissingen must produce a beneficial effect upon scrofulous eruptions is evident from their action upon the digestive organs. The efficacy of these waters however in affections of this nature is chiefly apparent in scrofula of the mucous membranes, in enlargement of the glands, especially those of the abdomen, when they occur in the adult state. — In all such cases the muriatic acid Steam Baths and those composed of the water of the Soolensprudel are employed with most success.

- c) *In Erysipelatous affections (Rothlaufprocess), whether they appear under the form of pure erysipelas, urticaria or angina, induration of the liver, or fluor albus in*

females, — the Ragozzi and the Pandur, probably from their effect upon the abdominal circulation, will be found most successful.

d) Derangement (torpidity) in the abdominal circulation chiefly considered as a cause of Hæmorrhoids.

In all such cases, whether affecting the vessels of the Brain, Lungs, Uterus, Eyes, or any other organs, the waters of Kissingen have in no instance failed to afford permanent relief; and it may be said, that in these instances their peculiar efficacy is infallible.

e) We cannot speak with the same confidence respecting their efficacy in gouty complaints; but we may say that they generally destroy the root of the evil, and are useful to a very great extent in arthritic metastasis to internal organs, as well as in masked and atonic gout, especially the nervous forms of the disease, in which carbonic acid proves so successful, as well as as in arthritic affections of the mucous

membranes, particularly of the organs of generation and of the eyes.

f) Deranged state of the nervous system manifesting itself in the form of Hypochondriasis and Hysteria.

Here the benefit of the Kissingen waters is as great and as certain as in Hæmorrhoids. This is a second class of cases in which these waters, and especially the Ragozzi, may be regarded as having a specific efficacy.

g) General atony of the vessels and nerves supplying the Abdomen, especially the organs of digestion with their appendages, and the organs of generation, whether it be caused by over excitement or proceed from debilitating causes.

In affections of this nature, so frequently to be met with in the present artificial state of society, the Ragozzi, the baths of the Soolensprudel, abounding as they do in carbonic acid, and the gas baths, have been found of effectual and permanent benefit.

h) Rheumatic affections.

The peculiar efficacy of the waters of Kissingen in diseases of this class consists in this, that by the use of these waters they are made to manifest themselves in the external muscular system and so can be benefited by the baths taken simultaneously with the internal use of the water. This is particularly to be observed in chronic rheumatic affections of the Uterus, Ovaria, Pericardium, or Rectum, masking themselves under the form of other diseases. A similar beneficial result may be expected in rheumatic neuralgia, whether having its seat in the abdominal or thoracic region.

i) In complaints of a catarrhal nature especially those having their seat in the mucous membranes of the stomach, rectum, or urinary and sexual organs, (the last particularly in the female sex), these waters are of decided efficacy.

k) We must lastly mention the internal use of the Ragozzi simultaneously with the

Baths of the Pandur as highly beneficial after recovery from low nervous gastric and similar fevers, in which the system has been greatly weakened and reduced. After the use of these waters for two or three weeks the patient will find himself much strengthened and often completely restored to his former health and vigour. The same remark applies to the after consequences of intermittent fever; only in such cases this remarkable circumstance will be observed, that when the disease has only been checked, but not completely cured, it will again manifest itself in a few paroxysms, after which it will entirely disappear.

We have already in some degree pointed out the difference between the three mineral waters of which we are treating. The first place among them belongs to the Ragozzi if we look to the proportion of iron this water contains as compared with its other ingredients. The importance of this ingredient must not be underrated, for upon it depends the applicability of the water to so large a range of diseases,

and hence it can be used without injury by persons advanced in years, in whom a *solvent* and *evanescent* treatment is indicated, without at the same time reducing the strength. Next to the Ragozzi ranks the Pandur, which possesses in a still higher degree the power of the former as a solvent and promoter of the secretions, though not so strengthening and consequently less powerful in its action on the vascular and nervous systems. — It agrees better with the female constitution and is admirably fitted for an evening drink. In the Soolensprudel the saline ingredients greatly preponderate; hence its properties are for the most part solvent and aperient. It is very rich in carbonic acid, and contains just so much carbonate of iron as to counteract the debilitating effects which might otherwise follow a continued use of its saline ingredients. It is seldom taken alone, but more commonly in combination with the Pandur or the Ragozzi. These three mineral waters are also used for baths, the Ragozzi however but seldom: more commonly the Pandur and the Soolensprudel

combined. The employment of the baths greatly assists the internal action of the waters.

When a course of chalybeate waters is indicated after Kissingen, those of Brocklet, which greatly resemble the Ragozzi, and are situated at the distance of a German mile only, may be safely recommended.

III.

THE WATERS AND BATHS OF KISSINGEN IN VARIOUS DISEASES OF THE CHEST.

The establishment of Muriatic Acid Steam Baths, together with an arrangement lately made for the manufacture of Whey, has had the effect of extending the application of the acidulated springs of Kissingen to affections of the chest. —

The efficacy of acidulated waters in general upon affections of the chest is now established by a series of well authenticated cases, more especially as regards the Maxbrunnen of Kissingen which has now been in use for centuries.

That which gives some peculiarity to the character of this water is, that Muriate of Soda is its predominant salt; that the Carbonic acid gas is most intimately combined with it, and that it is quite free from iron, to which circum-

stance it owes its beneficial influence upon the Lungs. In its operation it first of all acts upon the mucous membranes, exciting and invigorating their action, and promoting the process of assimilation; then by means of its carbonic acid it acts upon the skin and kidneys increasing their secretions, while the evacuations from the Bowels are but little augmented. Secondly, the natural secretion of all the mucous membranes, but especially that of the respiratory organs, is usually increased and altered in quality. Simultaneously with this, the secretion of bile becomes more active, and the skin and kidneys throw off any morbid matter which may be present in the body. Changes in the circulation gradually develop themselves; venous congestion decreases and disappears, and in the same ratio the arterial system regains its proper balance in the circulation.

The Maxbrunnen, totally devoid of iron, and in its saline contents coming short of the Ragozzi by nearly two thirds, cannot be expected to produce the same extensive and manifest effects upon the system. The change produced

by it in the secretions is less perceptible, the power of reaction is not so great, but it is of a surer and more lasting nature; hence febrile excitement in the use of this water is seldom produced or at least demands little attention. It is not the character of this spring to call into action all the vital energies or to produce any great or marked „Crisis“. —

Experience has decided in favour of the use of whey in certain diseases. At Kissingen the whey is prepared of goat's milk, occasionally from that of cows. The principal ingredients of whey are lactic acid, sugar of milk, osmazome, and different salts. And not only must we take into account the nourishing qualities of whey, but more particularly in reference to this subject its solvent powers, as well as its effect in gently acting upon and altering the character of the secretions. But on this subject it is unnecessary to say more at present.

We cannot rest the efficacy of the muriatic steam baths upon equally numerous and well authenticated observations as the above, since the agent has been comparatively speaking but recently employed. But of this we are certain, that as it is of necessity breathed, it acts simultaneously upon the skin and the respiratory mucous membranes. Its first effect is strongly exciting, then perspiration readily follows with prickling sensation in the eyes and nose, sneezing, followed by the ejection of phlegm &c. It is hence quite apparent how stimulating is its action on the mucous membranes and especially on those of the lungs. When its use is continued, pituitous matter altered in quality and quantity is freely expectorated; the respiration becomes free and the chest expands. An active process of excretion is also excited by it in the female organs of generation; at the same time all the other secretions of the body are brought into proportionate activity, among which that of the skin deserves to be specially mentioned, which again assumes a peculiar velvet like texture: by degrees a sense of tranquillity

and comfort extends over the whole body and a most beneficial influence is felt to be exerted upon the circulating and nervous systems.

We are hardly warranted in ascribing all these effects, which require a far closer investigation than there has yet been time to bestow upon them, merely to the salts and other ingredients contained in the steam of the baths. The increased temperature to which the patient is exposed during the inhalation of these substances must in our opinion also be taken into account.

These three agents of which we have now treated, assist, strengthen, and modify the operation of one another whether used separately or in combination.

This is principally the case in the following disorders:

- a) In persons in whom there is an abundant secretion from the mucous membrane of the lungs and who are very subject to cold and inflammation of those organs.
- b) Where there is a tendency to phthisis; especially in scrofulous constitutions, and

where the disease begins to be developed about the age of puberty.

c) In chronic catarrhal affections of the respiratory tubes, but principally in peripneumonia notha, whatever be their causes, when tubercles are not present, or if present, merely in a latent state. We have not as yet however had sufficient experience to judge whether or not the inhalation of the vapour of muriatic acid persevered in for some time has a beneficial effect in tubercles of the Lungs.

d) In great nervous irritability of the organs of respiration, such as we find in neuralgic and asthmatic affections of those organs.

In the above diseases, when we wish to produce a stimulating effect upon the mucous membrane, the Maxbrunnen, either alone, or mixed with a small quantity of whey, is indicated. But in cases where there exists a high degree of irritability, or there is reason to fear that inflammation may occur, also where spitting of blood is present, a larger quantity of whey must be mixed with the water to diminish the

stimulating effects of the carbonic acid and muriate of Soda. The application of the muriatic acid steam, in consequence of its general influence in increasing and bringing into harmony all the secretions, is especially to be recommended in torpidity of the mucous membranes. In such cases the use of this powerfully stimulating remedy has been attended with the most happy results.

Persons labouring under affections of the chest should also be aware that the inhalation of the atmosphere around the evaporating pans at Kissingen will be found most beneficial in the maladies with which they are afflicted.

IV.

EFFECTS OF THE MINERAL WATERS AND BATHS OF KISSINGEN IN DISEASES OF THE SKIN, IN RHEU- MATISM, IN ARTHRITIC GOUT, IN RHEUMATIC AND GOUTY NEURALGIA AND IN CASES OF RE- TROCESSION OF DISEASES.

In the treatment of this class of disease Kissingen affords a variety of remedial agents, such as the Carbonic acid gas, the fluid remaining after the evaporation of the salt, the mud impregnated with muriatic acid, and the muriatic acid steam. In cases of this description these are only to be used in the form of general baths.

These baths however are never used alone but always conjointly with the internal use of one of the three chalybeate saline waters, most commonly the Ragozzi.

We may here add a few general observations on the *modus operandi* of these remedies.

The Carbonic acid gas produces a stimulating effect upon the involuntary nerves and the circulation,—consequently an increased determination of blood takes place towards the organs brought into contact with it, and at the same time a sensation of warmth, of prickling, and of burning, is excited. By this means the obstructed functions of the capillary vessels and minute nervous ramifications are restored; the absorbent and excreting functions are called into action, and diseased matter is readily thrown off. Nor does the carbonic acid act only on those parts with which it comes into immediate contact, but it is likewise absorbed, and exerts upon the general system an influence the reality of which has been proved by several satisfactory observations. If the body is exposed uninterruptedly to the dry gas for hours together, a stunning sensation almost approaching to paralysis will gradually ensue, and the venous blood will become much darker, almost black in colour. It may farther be mentioned that the

carbonic acid will be found to act more readily upon some organs than others, and above all upon the genitals. The fluid remaining after the evaporation of the salt contains according to Kastner in 1000 grains,

Muriate of Soda	57,0100.	grains
Muriate of Potass	20,0000.	"
Muriate of Lithia	4,0000.	"
Muriate of Magnesia	250,8400.	"
Muriate of Ammonia	0,0037.	"
Hydrobromate of Magnesia	1,3500.	"
Hydriodate of Soda	0,0004.	"
Phosphate of Soda	traces	"
Sulphate of Soda	0,1225.	"
Sulphate of Magnesia	31,8500.	"
	<hr/>	
	364,1772.	"
Water	635,8228.	"
	<hr/>	
	1000,0000.	"

It is never used alone but always mixed for baths with a greater or less quantity of the Pandur or Soolensprudel water. Its effects are confined principally to the skin, where it pro-

duces strong irritation, a burning sensation, great redness and even pain.

In the muriatic acid mineral mud baths the Muriate of Soda is the chief ingredient; but in combination with this we find several salts combined with muriatic and sulphuric acid and traces of iron. The gases it contains are Carbonic acid and Hydriodic acid. The mud in which these ingredients are diffused modifies their stimulating effects upon the skin. Here however we also find a burning and itching sensation produced upon the skin accompanied by warmth and redness, a strong determination of blood to the surface of the body, copious perspirations, an eruption of pimples and miliary vesicles, and the reappearance of any eruptions that may formerly have been checked before arriving at maturity. Nor do the effects of the mud bath stop here; it acts even on the internal organs as a highly penetrating solvent and discutient remedy; under its use swollen and indurated sores and bruises become softer and gradually decrease.

The effect of Muriatic acid steam has already been sufficiently described in a preceding part of the work.

By combining these various baths, each of which is of such powerful efficacy, with one another or even with the internal use of the Ragozzi, Pandur and Soolensprudel, in such proportions as the age, idiosyncrasy or disease of the patient will dictate, the best results may be expected to ensue in the following diseases:

- a)* When from irritability of the skin copious sweats are too easily excited, or on the other hand where the skin is in a torpid state and those matters which ought to be removed from the body by cutaneous transpiration are obstructed, and thrown back upon other excreting organs. The great importance of a proper regulation of the functions of the skin appears to have been only recently acknowledged in medical Science.
- b)* In ringworm and similar eruptions, which have their origin in a deranged state of

the digestive organs, and especially of the Portal system. While the Ragozzi and Pandur exert a direct influence in attacking the very origin of the evil, the baths of which we are treating bring to full maturity and desquamation the eruptions on the skin; and thus only can a radical and permanent cure of these forms of disease be hoped for.

- c) In external rheumatism, in arthritic gout, and rheumatic and arthritic neuralgia. If the original seat of these disorders is in the joints or muscular parts of the body, or if a derivation to the surface of the body has been effected during a course of the chalybeate saline waters, the happiest results may be expected from the use of the carbonic acid steam or mud baths.
- d) In diseases which have either been improperly suppressed or driven in upon internal organs. No one can be ignorant how frequently these are to be met with, and under what obscure complicated and tormenting forms they sometimes exist.—

What we have already said of the efficacy of the Ragozzi and especially of the vapour and mud baths in such cases must suffice to show how great a variety of most efficient remedies Kissingen presents under these circumstances.

THE END.

Analytical Table of the Springs of Kissingen.

By

Dr. F. Antony Balling.

Temperature		Ragozzi	Pandur	Maxbrunn.	Theresienbrunnen	Soolensprudel
		9° R. 52 ⁰³ / ₄ F.	8°87 R. 52° F.	8°75 R. 51 ³ / ₄ F.	9° R. 52 ⁰³ / ₄ F.	15°6 R. 66° F.
Gas in 16 ounces	a) Carb. acid gr.	26, 25. Cub. Inches	28,85 Cub. Inches	31,04 C. Inch.	28,35 C. Inch.	30,576 Cub. Inch.
	b) Nitrogen "	Traces	Traces	0,008 " "	0 " "	Traces scarcely perceptible
	c) oxygen "	0	0	0,003 " "	0,005 " "	0
Residue on evaporating 16 ounces		85,74 grains	75,39 grains	30,65 grains	29,63 grains	187,68105 grs.
Muriate of Soda . .		62,05 grains	57,00 grains	18,270 grains	18,40 "	107,5153600 grs.
" " Potassa . .		0,91 "	0,25 "	1,002 "	0,85 "	0,9792000 "
" " Lithia . .		— " "	— " "	— 9	— " "	0,1920000 "
" " Lime . .		0,00 "	— " "	— " "	— " "	3,9936000 "
" " Magnesia . .		6,85 "	5,85 "	3,102 "	2,75 "	24,5161000 "
Bromate of Soda . .		— " "	— " "	— " "	0,07 "	0,0000000 "
" " Magnesia . .		0,70 "	0,68 "	Traces	Traces	0,0629760 "
Iodate " "		Traces	Traces	— " "	— " "	—
" " Soda . .		0,00 "	— " "	— " "	Traces	0,0000020 "
Corbon. " "		0,82 "	0,03 "	0,380 "	0,39 "	—
" " Lithia . .		Traces	Traces	Traces	— " "	—
" " Potassa . .		0,00 "	— " "	— " "	0,05 "	—
" " Lime . .		3,55 "	5,85 "	2,590 "	2,00 "	1,6512000 "
" " Strontia . .		Traces	Traces	— " "	— " "	—
" " Magnesia . .		2,50 "	1,62 "	— " "	2,37 "	6,4128000 "
Sub-Carb. Iron . .		0,68 "	0,45 "	1,860 "	— " "	0,3550000 "
" " Magnesia . .		Traces	Traces	0,651 "	1,35 "	0,0008815 "
Sulphate " Soda . .		2,00 "	1,75 "	0,125 "	0,75 "	25,3079100 "
" " Lime . .		2,50 "	0,75 "	0,465 "	— " "	—
Phosph. " Soda . .		0,17 "	0,05 "	— " "	0,50 "	Doubtful Traces
Silica		2,25 "	1,55 "	— " "	— " "	—
Alumina . - . . .		0,18 "	0,05 "	—	—	—

Alexander M. Downie, M. D.

